

# Energy Future System Operator

ESO consultation response

28/09/2021





## Executive Summary

We welcome the opportunity to respond to the Energy Future System Operator consultation.

Climate change is the challenge of a generation. The recent publication of the Intergovernmental Panel on Climate Change (IPCC) 6th assessment report drives home the urgency of action needed now to make sure our world remains safe for generations to come. The energy system is integral to decarbonisation; the creation of a future system operator could help enable the unparalleled change in the energy market, in consumer behaviour and in technological progress needed to achieve net zero carbon in less than 30 years.

Our vision for the future system operator is a world leading organisation at the heart of the energy system and the delivery of net zero - ensuring security of supply and resilience alongside providing a whole energy system view to support optimised decision-making and action in the decarbonisation of power, heat and transport. It will be a technology and digitally enabled business that engages openly and transparently across industry and society - acting as a trusted partner and advisor to government, regulator and industry, with deep engineering, data and technology expertise at its core.

### An organisation able to take a truly whole energy system perspective

Delivering a 'net zero ready' energy system needs a body capable of addressing challenges from a whole energy system perspective. Bringing electricity and gas roles together in a future system operator starts to build this holistic view and address the increased operational and planning challenges facing our industry.

However, taking a truly whole energy system approach to a more complex energy 'eco system' will require these accountabilities, roles and capabilities to evolve over time. The creation of the future system operator with new roles for net zero must therefore be underpinned by relevant changes to the regulatory framework and clarity on roles and responsibilities for all parties.

The future system operator requires both deep knowledge of energy sectors and the ability to look for combinations and trade-offs across vectors; it cannot be an electricity-based organisation with a few gas roles added to it. It must be resourced with capable employees with experience across all vectors, as well as people with the aptitude to develop whole energy system policies and frameworks.

We do not believe that day-to-day gas system operation should be moved into the future system operator due to the safety considerations this would entail. However, in addition to the gas planning and strategy roles outlined in this consultation, we do see significant benefit in establishing a role looking at whole energy system resilience and energy emergency response. An office of energy resilience and emergency management could be a core element in the new organisation, providing not only strategic management of emergencies, but also resilience assessments and standards across different networks and identifying where there are interactions or vulnerabilities, and setting out what needs to be done to address them.

## Future roles and functions

We see value in enhanced roles for the future system operator in areas such as strategic network planning and driving competition in energy networks. These represent a natural evolution of current work and of the ambitions for the ESO developed with stakeholders in RIIO-2. There are significant opportunities to drive progress and efficiencies in these areas by considering them in a whole energy system way, and we look forward to continuing to develop these roles in consultation with our customers and stakeholders.

The advisory role is well aligned to the purpose and capabilities of a future system operator. More work will be required to define its scope, but there will be clear value in an expert, impartial voice providing targeted technical advice in relevant areas, particularly to facilitate decision making. Some of the other proposed roles and capabilities, specifically those in hydrogen, CCUS or heat and transport decarbonisation, are naturally less defined as they will require greater clarity in other areas before they can be further developed.

At this stage, there is insufficient detail around what a role in dispute resolution could entail for the future system operator, and its value in supporting net zero. We agree that there must be a route for dispute resolution, and we would welcome further discussion on this.

## Desired characteristics and attributes

The characteristics and attributes identified in the consultation are the right ones for the future system operator and align with feedback from our people, customers, and stakeholders. We have called out some specific dimensions that we believe are critical when assessing not just the organisational model, but also when considering implementation:

- **Agility, flexibility and innovation:** The future system operator will need to understand and respond to the changing energy system efficiently and effectively, embracing new technology and solutions.
- **Technology and data enabled:** Systems and ways of working, as well as how the future system operator interacts and shares data with stakeholders and partners, will be vital to success.
- **Consumer focus:** Decision-making must fully consider consumer fairness, with accountability to the consumer demonstrated in all activities.
- **Technically expert and operationally excellent:** The processes and governance of the future system operator must support its core purpose, and the employee value proposition must enable talent to be recruited and retained in an increasingly competitive field.
- **Independence:** As the new roles of the future system operator expand its remit, demonstrating independence from conflicts of interests (both real and perceived) with any 'other energy interests', as well as from government, will be crucial.
- **Resilience:** The future system operator will require operational resilience to enable safe and reliable energy delivery as the energy system transforms - both on a day-to-day basis and also in times of system stress. It will also require financial resilience with the discretion to invest to meet net zero and ensure sustainable operations in the event of financial shocks.

How these characteristics and attributes are enabled is of fundamental importance to ensure that the future system operator is set up for success to respond to a changing energy system.

## Organisational model

Ensuring the right organisational model and governance is critical to the success of the future system operator. While the ownership model is important, fundamentally it is the characteristics and attributes of the organisation (as discussed above), and how they are enabled, that will set the organisation up for success. The new organisational model must enable agility and innovation, enshrine independence at its core and promote good governance. It should allow leaders to set direction and deliver results, while fostering a culture which embraces openness, transparency and forward thinking.

While the public and private models both have the potential to deliver the required characteristics and attributes, the way in which either model is implemented will be of fundamental importance. The statutory, regulatory and corporate elements of the overall structure and governance model must come together coherently from day one, to enable the critical design parameters as laid out.

## Our people

The success of the ESO lies in our people, and so it is vital that the journey to a future system operator should consider their needs.

Over the summer, we commissioned an independent agency to conduct a colleague sentiment survey, colleague interviews and workshops. Our people care deeply about the future direction of our organisation, with more than three quarters responding to the survey. Our colleagues have told us that they are strongly motivated to work in an organisation focussed on delivering net zero, and that they want to work in a nimble, flexible organisation unencumbered by unnecessary and inappropriate bureaucracy that can stifle ideas and slow decision making.

At the same time, we know uncertainty can be concerning, with some of our people worried about the potential changes to an unknown future state. To ensure we can retain, nurture and develop the talent in our organisation, the approach to transition should minimise uncertainty in both timelines and outcomes, giving timely assurances on organisational model and roles along with impacts for individuals around issues such as pay, terms and job security etc.

## Implementation

Creation of the future system operator will be a significant transformation programme that must be delivered alongside other significant industry change, without compromising security of supply and continued delivery of the ESO's commitments to enabling zero carbon operation and competition everywhere.

To minimise disruption for all stakeholders the approach to implementation should be grounded in a clear vision and outcomes for each phase of work, proactive preparation and robust programme governance. Strong communication and planning will enable implementation to unlock maximum value and move at pace without introducing undue risk. The approach to transition should minimise uncertainty in both timelines and outcomes for our people, as well as for our customers and stakeholders. A phased approach will be important to mitigate undue risk, particularly recognising our important and continued role in maintaining current world-class system operation and security of supply.

In parallel to preparing for the separation of the ESO, significant work will be required to design the governance and operating model of the new organisation. Clarifying the future system operator's new accountabilities and establishing its vision should be an early priority – this will also help to

ensure the timely development of the culture, skills, systems and resources needed to fulfil these roles.

Our experience of legal separation demonstrated the value of having an early multi-party statement of intent. This enabled all parties to agree on shared objectives and direction of travel. We believe a similar statement could have significant value, providing clarity to employees on the direction of travel and timeline while also allowing all parties to proceed with 'no regret' activities, in preparation for the outcomes of the legislative and transaction processes.

It will be important that the sale process of the ESO from the existing owner, National Grid Plc, be properly factored into the implementation plans.

### Conclusion

A future system operator, with the right roles and capabilities to take a truly whole energy system perspective and an organisational design with the appropriate governance to enable agility and innovation, will play a vital role in the energy system's drive to net zero. We look forward to continued collaboration with BEIS and Ofgem to agree how this vision can be achieved.

## Our response

### Q1. Do you agree that net zero will create the need for new technical roles in the electricity and gas systems, and require a new approach to energy system governance?

Yes, we agree that to drive the delivery of net zero there will be a need for new technical roles in the electricity and gas systems. However, simply adding the current electricity system operation and gas planning roles together will not achieve a whole energy system operator. New capabilities will be required to optimise across different systems and consider trade-offs between vectors.

Taking on both technical and more strategic roles will create a foundation for a future system operator that can go on to become a whole energy system operator. This is not just limited to the gas planning function but includes roles such as long-term supply and demand forecasting, and long-term network planning and development across vectors. This mindset shift from existing electricity and gas system operator roles to a truly whole energy system perspective will also need to be replicated in the wider governance of the GB energy system.

Outside the current roles of the ESO, there may well be additional roles and responsibilities required to deliver net zero. However, we do not think that the creation of a new strategic institution is required. Any additional roles can be delivered through the future system operator, with its foundation of ESO skills and capabilities, and other appropriately resourced existing institutions.

### Q2. Do you agree that the establishment of a Future System Operator is needed to fulfil the kinds of technical roles needed to drive net zero?

We welcome the proposal for the establishment of a future system operator and we agree this is required to fulfil both the technical *and* strategic roles needed to drive net zero. A future system operator, built on the existing capability of the ESO, would have these capabilities and specialist expertise to build the independent, technically expert and influential organisation required.

The energy system of the future will be a multi-vector whole energy system encompassing what is now the electricity transmission system, electricity distribution system and gas networks, as well as a much broader energy landscape including heat, transport, consumer level energy resources and potentially other fuels such as hydrogen. The energy system will be more decentralised and digitally enabled, reliant on open data removing barriers to market entry for consumers.

A future system operator with a whole energy system focus, independent from other energy interests, would be well placed to help set strategic direction for the whole energy industry, free from any perceived conflicts of interest. A greater technical advisory role will help ensure impartial, accurate advice informs key policy decisions. Combined roles across the strategic planning of both electricity and gas, coordinating across the whole energy system, will help unlock the energy system's net zero potential. For example, coordinated planning on the location of electrolyzers and hydrogen storage sites would optimise their value to the hydrogen network and provide storage for the electricity network. This, as with much of the other whole energy system functions, will take time and capability build to be realised.

### Q3. Do you agree that a Future System Operator should have roles in both the electricity and gas systems?

Yes, we agree that the future system operator should have roles in both the electricity and gas systems. Meeting the net zero target requires a focus on energy use across society and consideration of emissions in all sectors. As such, a body looking to plan and coordinate energy needs and delivery into the future cannot be limited to a focus on electricity only.

Bringing strategic gas roles in alongside existing ESO roles will serve as a foundation. However, a shift to 'whole energy system' will require further capability build and consideration of the outputs and outcomes that will inform decision-making and action on a whole energy system basis.

There will also be other energy vectors and enablers playing a part in the whole energy landscape, such as hydrogen and carbon capture usage and storage. Bringing together gas, electricity and other vectors would enable the future system operator to take a whole energy system view of net zero, without bias to any technology, sector or solution. The potential for the future system operator to study and advise on these should also be considered, recognising that such a step would also require significant additional capability build.

We already study whole energy system needs in the *Future Energy Scenarios*<sup>1</sup>(FES). This is a good example of where taking this wider view adds value; FES analyses sectors such as heat and transport to provide insight on how the change in energy use of these sectors could impact on overall energy demand. This insight is invaluable for areas such as future network design.

### Q4. Do you agree that a Future System Operator should be entirely separate from National Grid plc?

We agree that, due to the proposed new and enhanced roles outlined in this consultation, it is the right time to consider the organisational model for the future system operator. We welcome the recognition of the success of the legal separation programme and the finding that there is no evidence of conflicts of interest impacting the ESO and National Grid Group today. The legal separation of the ESO within the National Grid Group was the right model for its time, enabling the organisation to keep household bills down by working to promote more competition, coordination and innovation across the electricity system, while addressing any potential conflicts of interest.

Fundamentally, the case for change and associated proposals set out in this consultation are about driving towards a future net zero energy system; they are not about how best to organise and manage today's energy system and its System Operators. The challenge of net zero, the required speed of decarbonisation and the level of industry and societal change requires the role of the ESO to significantly evolve and expand.

As we take on enhanced and extended whole energy system roles, we recognise it is the right time to consider a further change to our organisational model. This is particularly the case when considering driving further competition in networks, where we recognise the challenges posed by organisations from within the same group both competing in and running the competition. We also acknowledge that entirely new roles, such as advising BEIS, Ofgem and other public bodies, takes the future system operator much closer to government policy. Consequently, the need for an

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<sup>1</sup> <https://www.nationalgrideso.com/future-energy/future-energy-scenarios>



increased level of independence from other energy interests, and to prevent perceived or potential conflicts of interest from these new roles, becomes more acute.

**Q5. What issues are there with existing institutional arrangements in the UK energy system in relation to system-wide decision-making and planning?**

Some of the current challenges with existing institutional arrangements in the UK energy system include:

- **A need for consistent understanding and application of whole energy system thinking:** For efficient decisions to be made in reaching net zero, there is a need for a consistent, agreed understanding of 'whole energy system' to be applied in energy related matters, as well as an industry agreed definition of net zero that accounts for all sectors. Without this clarity there are complications and risks of incompatible decisions across industry and policy. We expand on this in our response to question 6.
- **A need for some level of central coordination and delivery planning:** No one institution currently has the remit to take an overview of and coordinate delivery strategies and plans to meet net zero, either within or beyond the energy system. This risks inefficient decision making and delay.
- **A lack of clear accountability for consumer education:** There is a lack of clear accountability for leading comprehensive communication and education with consumers about the benefits and costs of net zero.

The above implies there are currently some strategic gaps in existing institutional arrangements, but we do not see the need to create a substantial new institution(s) to fill these. The ESO is well positioned to take on some of these new roles considering our technical expertise, position at the heart of the energy system and our daily interactions with a range of industry participants across multiple interfaces. In addition to this, there are matters of policy and strategic direction setting that naturally sit with BEIS, which should be suitably resourced to address them with the support of Ofgem, the future system operator and other existing institutions.

**Q6. What examples/case studies are you aware of where net zero delivery in one part of the energy system did not adequately account for cross-system impacts or costs?**

There are limited global case studies on the delivery of net zero as its pursuit is relatively recent. However, our work has identified some examples where cross-system impacts or costs risk not being adequately accounted for when pursuing decarbonisation initiatives.

One such example can be found in our *Future Energy Scenarios: Bridging the Gap to Net Zero* publication and the section on 'Bioenergy in a net zero world'. This example discussed how sector by sector analysis fails to account for the fact that finite bioresources can be used in a number of different industries and areas. Without a whole energy system approach, this could lead to several sectors assuming bioenergy will be available for decarbonisation in the future when in fact there are not enough inputs for all these areas. Similarly, bioenergy is an important route to negative emissions, but the scale of negative emissions needed to reach net zero across society will depend on decisions made in many different areas – and these decisions may not be coordinated.



More broadly, the pace of decarbonisation that is required to meet net zero will mean the concurrent delivery of change programmes across multiple sectors at an unprecedented speed. This substantially increases the risk of unanticipated cross system impacts / costs as compared to previous decarbonisation initiatives. A future system operator with a whole energy system perspective could play a key role in addressing this, by:

- anticipating key interdependencies and risks as networks and technologies develop
- considering cross sector solutions and efficiencies
- ensuring that net zero and whole energy system thinking consistently accounts for the evolving GB energy system and new technologies, and
- taking a whole energy system approach to ensure that risk to the GB energy system, energy market participants and the consumer is adequately accounted for in delivery planning.

#### **Q7. Where should government focus in our efforts to improve systems thinking and coordination across the energy system?**

The UK Government should continue its proactive approach to enabling the transition to a net zero energy system. There are many recent examples where it is providing the required direction. These include *The Ten Point Plan to a Green Industrial Revolution* (November 2020), the *Energy White Paper* (December 2020) and the *UK Hydrogen Strategy* (August 2021). These provide the energy industry and the wider economy and public with policies, targets and direction of travel.

However, policy making has been incremental, with changes introduced individually and over a significant timeframe (e.g. Contracts for Difference and the Capacity Market were introduced by the Energy Act as far back as 2013). What is required is a holistic approach to designing the energy system, dependent not just upon policy, but the provision of long-term whole energy system coordination. This could involve decisions at a national and/or regional level that consider how different vectors respond to the consumer needs of the country/region, giving investors the appropriate confidence to respond accordingly.

Up until now different vectors, and their respective policies and targets, have been approached in isolation. This is reflected in not just vector specific strategies, but also in the organisational make-up of BEIS (e.g. individual units for Energy and Security, Clean Heat, Renewable Electricity). As system operation moves from being managed on a vector-by-vector basis (e.g. electricity and gas managed separately) to a whole energy system approach, this should be mirrored at government level. This would enable the development of whole energy system policies. There are huge opportunities to lower the costs of the net zero transition if strategic network planning and market developments are considered in a whole energy system way.

We believe government should take a role in decision-making and the development of solutions that that cannot be left to the marketplace. For example:

- Decisions on how the cost of the energy transition will be met. This could be borne by consumers (through energy bills) or taxpayers (with investment coming from public funds), or a combination of both.
- The incubation of new technologies that may require time to mature before being subject to market forces. This approach has proven to be highly successful for renewable generation technologies such as offshore wind.

- Leading the public on the journey to net zero. Influencing public opinion and behaviours can be done in collaboration with industry, particularly trusted brands that have experience in leading behaviour change. Nevertheless, only the UK Government (and the devolved administrations) have the democratic accountability and legitimacy to take the lead in this area.
- Given the pace of change and level of uncertainty in some areas, it may be appropriate for the government to provide for some level of anticipatory investment to ensure future growth is not held back by investment timescales.

**Q8. Do you agree that the FSO should undertake all the existing roles and functions of NGESO? If not, please explain why.**

We agree that the existing roles of the ESO, with the addition of strategic gas functions, provide the foundational capability required to establish the future system operator, while maintaining current levels of world-class electricity system operation and security of supply.

Certain roles, such as real-time system operation, network planning and market operation, are fundamental and indivisible to the role of the system operator for electricity. These three roles are defined in Ofgem's *ESO Roles Guidance*<sup>2</sup>, which sets out the activities and behaviours expected from the ESO to fulfil our licence conditions. The roles draw upon our organisation's knowledge, experience and expertise. As a result, we believe it is right for the future system operator to undertake all the existing roles and functions of the ESO from day one.

**Q9. Do you agree there is a case for the FSO to undertake the long-term strategic functions outlined in Option 1? Please elaborate and provide any views on the functions we have outlined in Option 1.**

The inclusion of the long-term strategic gas functions outlined in the consultation is a positive first step in creating a whole energy system operator, and the capability should be included from day one. Once alongside electricity counterparts, there should be a process where these newly combined activities look across multiple energy vectors to see where there are opportunities to optimise the delivery of energy, in terms of both cost and security of supply.

Current capability for the long-term strategic gas roles sits across the Gas System Operator (GSO) and the ESO, however the number of resources allocated to carrying out these activities currently is relatively low. To deliver whole energy system benefits, knowledge and capability will need to be grown within a future system operator. To deliver this on day one, there may have to be some duplication of the functionality across both organisations, as mentioned in the consultation, and this capability build could begin early to ensure there is no delay in developing whole energy system capabilities.

The future system operator should perform the strategic network planning role outlined in the consultation with a view to optimising the delivery of net zero in a safe and cost-effective way. Delineation of responsibilities between the future system operator and the gas network owners will be required to minimise duplication of work.

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<sup>2</sup> <https://www.ofgem.gov.uk/publications/decisions-eso-guidance-documents-2021-23>

Developing the strategic network planning skill set now will be key to understanding what role hydrogen networks, for example, will play in solving challenges in running a net zero energy system. The location of hydrogen will impact both electricity and gas distribution networks and could benefit from national coordination to ensure a whole energy system approach.

Long-term forecasting for natural gas is currently undertaken by the ESO when producing the *Future Energy Scenarios* and should be continued by the future system operator. During the current process, the ESO takes a whole energy system approach across multiple energy vectors, determining the potential requirements for each in the future. The scenarios are used across the GSO, the ESO and many other industry players to forecast energy requirements. This is an area that will need to develop further as the energy sector becomes increasingly complex and further detailed studies are required.

Gas market strategy functions should sit within the future system operator to ensure all energy markets are considered cohesively in the delivery of net zero. The gas market strategy functions within GSO currently produce the *Gas Market Plan*<sup>3</sup> and lead the Future of Gas forums. These take a longer-term view on developments required within the gas markets, for example due to the deployment of hydrogen as a fuel. These are highly dependent on other sectors, like residential heating, as these will drive the demand for a gaseous fuel. It would therefore make sense for these to be led by the future system operator. A future system operator will also require the ability to suggest and/or implement changes to the current gas markets to make sure that policy for the whole energy system energy markets is implemented. Bringing these functions across vectors together into one whole energy system perspective will take time and require development of appropriate skills.

Undertaking gas strategic functions requires access to quality data from a range of sources within the gas sector. Ensuring a future system operator has access to this data will be a key element to the success of the bringing together of gas and electricity.

### Office of resilience and emergency management

The route to net zero will require more cross energy vector dependencies. This will be especially true during an emergency; therefore, we see a need for the development of whole energy system emergency response. An office of energy resilience and emergency management could be a significant and central element of the future organisation. This would be separate from, but coordinate with, all other control centres and the roles established in the event of an emergency, such as the Network Emergency Coordinator (NEC).

An office of energy resilience and emergency management would be responsible for cross vector resilience, emergency preparedness and emergency response. These functions cannot be carried out in silos and will require strong industry engagement.

Developing an understanding of the interactions and vulnerabilities of the whole energy system will form a key function. To do this, the office would require the ability to conduct studies and analysis on the whole energy system. This would then allow the office to be able develop and assess resilience standards with the industry. The office may also identify new services required to provide resilience and could ensure / monitor delivery of these.

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<sup>3</sup> <https://www.nationalgrid.com/uk/gas-transmission/future-of-gas>

To ensure whole energy emergency response preparedness, the office should develop and manage a whole energy system emergency response process. To certify the effectiveness of the process, the office should run and manage whole energy system emergency exercises and report back to the industry where improvements could be made.

In an emergency, the office of energy resilience and emergency management should establish a response team. This team should be able to coordinate actions across multiple energy vectors to ensure the safety of, and least disruption to, consumers. This role could assist in managing the information and data being considered as part of the Review of the Impact of a Gas Supply Shortage on the Electricity Network (RIGSSE) project. This project is looking at how best to share real-time operational information and increase control room cooperation in times of gas system stress.

Setting up an office of energy resilience and emergency management would impact the NEC, whose role would need to be reviewed, considering the optimal position of both parties and defining accountabilities.

**Q10. Do you agree that there is not currently a case for the FSO to undertake all GSO roles and functions, including real-time gas system operation, as outlined in Option 2? If you do not agree, please explain why.**

We agree with the arguments laid out in the consultation, that the case for a future system operator containing all Gas System Operator (GSO) day-to-day operational roles and functions, is currently weaker. Therefore, these should not form part of the future system operator's roles.

Regardless of any operational inefficiencies, due to its volatility as a fuel, the most important aspect in managing a gas network is safety. As described in the consultation, the separation of the asset owner and the system operator could have significant implications for the Gas Transporter safety case that would require careful consideration on how the network could be run.

It is important to emphasise that, as with Option 1, data provision from the GSO to the future system operator will be a key element. This will need to be developed regardless of the option chosen to ensure that the future system operator will be able to study and understand the current state of the gas network, to be able to optimise its future state.

**Q11. Do you have views on the proposal for an advisory role? What organisations do you consider would benefit from the provision of advice by the FSO? Who should bear the costs of providing that advice?**

We agree with the proposal for an advisory role and see it as well aligned to the purpose of a future system operator. In the drive to meet net zero there will be clear value in an expert, impartial voice providing targeted technical advice in a number of areas, particularly to facilitate decision-making. The proposed advisory role very much aligns with our 'trusted partner' ambition, described in our *RIIO-2 ESO Business Plan*<sup>4</sup>, and builds on work we are already doing.

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<sup>4</sup> <https://www.nationalgrideso.com/our-strategy/riio/riio-2-final-business-plan>



To appropriately fulfil the ambition outlined in the consultation, we note that:

- Advice should be clearly focussed on areas where the future system operator has a defined role or expertise, and we agree that there will be a need for requirements and conditions to clearly scope the advisory role;
- A formal advisory role must include satisfactory arrangements for funding the future system operator to provide this advice.
- In the first instance, Ofgem, BEIS, devolved governments, the Committee on Climate Change (CCC), the National Infrastructure Committee (NIC), Code Managers and potentially other system operators are likely to be the most appropriately placed to request future system operator advice.
- The role will need to be carefully scoped in legislation and/or our licence to ensure there is the right balance between clarifying the scope of the role, whilst allowing for its evolution as the future system operator expands into new areas of responsibility.

We expand on these points below.

### Scoping the advisory role

In the journey to net zero, a lot of complex questions will need to be answered. We believe the future system operator could provide valuable, impartial and expert advice to help answer these, which should be clearly focussed on areas where we have a defined role and appropriate expertise.

For example, the future system operator could be well placed to advise on cross vector system operation impacts of specific decisions. But we would only be well placed to provide advice on local energy issues *if* we develop a defined role in local energy mapping or planning, which would require building appropriate skills.

We would therefore expect the full remit of this advisory role to evolve alongside the definition of the future system operator's other agreed roles. To avoid a dilution of the advisory role and undue burden being placed on the future system operator, we agree clear procedures or conditions would be needed to make sure we are providing appropriately targeted advice. To ensure the success of the role the future system operator may need to become the 'critical friend' of recipients of advice, with a responsibility to robustly challenge where appropriate.

### Who could benefit from future system operator advice?

In the first instance, we suggest that national, public-sector decision-making or advisory bodies (such as Ofgem, BEIS, the CCC, the NIC, and devolved governments) would gain the most benefit, as well as Code Managers.

The Design and Delivery of the Energy Code Reform<sup>5</sup> consultation will potentially introduce an Integrated Rule Making Body or a Strategic Body with licensed Code Managers. We see benefit in the future system operator providing an advisory role to these parties to assist with the code change process to support the delivery of net zero.

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1004005/energy-code-reform-consultation.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004005/energy-code-reform-consultation.pdf)

Should the future system operator's roles develop to include a local energy planning or mapping focus, local authorities could potentially benefit from such advice. However, this would be a capability build from our current area of expertise and, given the number of local authorities who may wish to seek advice, would also likely require significant resource.

Currently, we also receive requests for advice and information from other national system operators around the world. This has proven to be a very valuable opportunity to learn from the experience of other countries and contribute to global best practice. We would anticipate the future system operator continuing with this work.

### Resourcing the advisory role

Who can request advice from the future system operator will shape how the role could be appropriately resourced. Should the scope of those requesting advice be limited to national public sector bodies, we believe the simplest and most pragmatic resourcing route would be funding through the existing regulatory price control mechanism, as a cost pass through, similar to other roles undertaken by the future system operator.

As noted above, the proposed advisory role very much aligns with our 'trusted partner' ambition, and we currently provide advice to many organisations on an informal basis. However, today this work is undertaken in addition to core roles and is subject to resource constraints. To build a formal role providing high quality and timely advice, additional resource will be needed.

Depending on the volume of requests for advice, a fair and transparent prioritisation process may be needed to ensure requests can be triaged and addressed in a strategic manner.

### Formalising the advisory role

A statutory duty, as with any legislation, requires clarity and specificity. We note, for example, the CCC's statutory duty to provide advice clearly sets out the subject areas and specific work packages where advice can be requested.

However, we believe that in the case of the future system operator, this advisory role is likely to develop as other future roles evolve. To strike the right balance between scoping the advisory role in primary legislation and allowing for evolution of the future system operator's roles, it may be the case that the role could be scoped at a high level in primary legislation but with further detail in secondary legislation or the future system operator's licence.

### Q12. Do you have any views on the other areas where we are considering new and enhanced roles and functions for the FSO (outlined in section 3.2)?

We agree with almost all of the new and expanded roles proposed for the future system operator and are excited by the opportunities they present. Given the scale of work and the level of capability build we will require as an expanded organisation, we agree roles focused on achieving net zero and consumer value should be prioritised, and we discuss these first. Further detail on why we believe these roles should be prioritised can be found in our response to question 19.

In some areas, the ESO is already stepping up into expanded roles. For example, the roles outlined in the consultation to enable the future system operator to drive competition build on our work in the *Early Competition Plan* and Network Options Assessment (NOA) Pathfinders, to broaden the range of providers considered in our planning processes. Similarly, we have launched a market reform project to consider how electricity markets will need to evolve to meet net zero most efficiently.

Whilst meeting the timescales for net zero may require legislation or code changes, many areas of the consultation represent a natural evolution of our work and roles developed in RIIO-2, and we welcome the opportunity for the future system operator to take on greater responsibility in these areas.

We appreciate that some roles, specifically those in heat and transport decarbonisation, hydrogen and carbon capture usage and storage (CCUS), are naturally less defined at the moment and will require greater clarity in other areas before they can be further developed. A concern we have is that the delivery of net zero needs to proceed at pace. We look forward to working with Ofgem, BEIS and energy stakeholders to determine the best role for the future system operator in these areas, as well as how we can accelerate a truly whole energy system approach.

At this stage, there is insufficient detail around what a role in dispute resolution could entail for the future system operator, and its value in supporting net zero. We agree that there must be a route for dispute resolution and while we do not consider this role should necessarily sit with the future system operator, we would welcome further discussion on this.

### System planning and network development

Reaching net zero will require a significant coordinated effort, of which system planning and network development will be a key part and we agree that this role should form part of the new and enhanced functions of the future system operator. A whole energy system operator must be able to coordinate across multiple energy vectors and plan the system and networks of the future. There are opportunities to lower the costs of the net zero transition if strategic network planning is performed in a whole energy system way.

The ESO already has the foundations on which to grow these functions and we are currently taking on more responsibility in system planning, demonstrated by our role in the Offshore Transmission Network Review (OTNR). Through our offshore coordination project, we are taking actions within the BEIS-led OTNR to deliver a coordinated offshore network across short, medium and long-term timescales. This is to deliver the benefits to consumers, the environment and coastal communities that we demonstrated through our work last year.

We currently have a role in onshore network planning coordination through the Network Options Assessment (NOA) process, and the skills and capability developed for this could provide a foundation on which to build. To support efficient, coordinated and timely development of a network that supports net zero, a future system operator would require the capability and remit to undertake long-term system planning and network development work. It should be enabled to set out the right strategic network capability options, in collaboration with industry, which can then be assessed and progressed in the most appropriate way.

There are some key enablers to allow the system planning and network development functions to develop:

- clear delineation between the planning roles of the future system operator and delivery bodies in terms of what each will be planning and to what level of detail,
- clear accountability on who will hold third parties to account for delivery of the capability promised for any design solutions offered,
- clear directive for the future system operator to design the framework to optimise solutions across all elements of the energy system, for example both onshore and offshore electricity network design, gas and electricity interconnectors, hydrogen import capabilities etc.

A network design process that includes multiple energy vectors will take considerable planning and industry engagement to implement. This could take the form of a whole energy system options assessment, but considerable up-front process design work and capability growth would be required. To realise the full benefit of this process the future system operator will need the mandate, skills and capability to produce network development options for inclusion in this process.

The network design process could have the potential to advise where there may be benefit in transferring funds between energy vectors, to enable delivery of the most effective whole energy system solution.

For the future system operator to deliver system planning and network development it would need the capability and skills to stay abreast of new technologies that could be a disruptor to network designs of the future. The foundation of this capability already exists in the ESO and is used in the production of the *Future Energy Scenarios*. However, this will need to expand.

We note the key role for Ofgem in cross vector system planning and network development, to critically evaluate investment proposals as part of the price control process. We believe this would be best suited to remain with Ofgem. As discussed previously, a future system operator could advise Ofgem on network requirements for the investments. However, we do not believe the future system operator would be suited to evaluate the investment proposals of the transmission owners, or other bodies, during their price control process.

There are several other activities under way in this area, in which we are involved. These include, but are not limited to, Ofgem's strategic review of electricity transmission network planning and the BEIS OTNR. We will continue to work closely with Ofgem and BEIS to ensure, as far as possible, these activities are coordinated and consistent, and that the risk of duplication of effort is minimised.

### Driving competition in energy networks

We welcome the proposed roles for the future system operator in driving competition. These build on our existing work to broaden the range of providers considered in our planning processes through our Network Options Assessment (NOA) Pathfinders and our *Early Competition Plan*<sup>6</sup> (ECP), which sets out how competitions could be run to design, build and own transmission assets.

Running tenders and advising Ofgem on assessment criteria aligns with our recommendation in the ECP, supported by stakeholder feedback, that we are best suited to undertake the Procurement Body role. This supports our strategic ambitions to deliver competition and unlock consumer benefit, as well as creating efficiencies by aligning with other ESO roles in the tender process.

As part of the development of our *Early Competition Plan*, stakeholders raised their concerns regarding perceived conflicts of interest of the ESO becoming the Procurement Body while remaining part of National Grid Group. It will also be important that the sale process of the ESO from the existing owner, National Grid Plc, be properly factored into the implementation plans prior to taking on this role. Further thinking and development is needed, in conjunction with Ofgem, to fully understand and mitigate the risks and challenges associated with this activity, and determine how the role would be carried out in practice. This includes greater clarity over decision-making responsibilities within the process and associated liabilities.

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<sup>6</sup> <https://www.nationalgrideso.com/document/191251/download>



We have an important role to play in network planning. Making recommendations on where network competition for specific projects would be in consumers' interests has been identified in the *ECP* as an activity the ESO could undertake as part of a strengthened Network Planning Body (ESO) role. Taking on this function would require capacity and capability build in areas of niche technical expertise, such as asset knowledge, and in market engagement to run a greater number of events.

We welcome the consideration of a full range of solutions to meet future network needs and this includes the use of commercial solutions. In many situations, where codes and frameworks allow it, there are benefits in considering a range of solutions when developing the network that are in the best interests of consumers. We have taken steps in this space already, implementing NOA Pathfinders to meet a wider range of issues from a broader set of industry participants. Much of the development seen through the NOA Pathfinders feeds into the principles of the *ECP*, and we believe that we continue to be well placed to deliver these types of processes.

A future system operator could also play a role in driving competition in the other vectors. For emerging vectors, such as hydrogen and CCUS, these should be developed with competition from the outset.

We will continue to work with Ofgem and industry in this area to further develop thinking and make sure that roles and responsibilities are appropriately defined. More detail can be found in our responses to Ofgem's consultations on Early Competition and greater coordination in the development of offshore energy networks, and the Network Planning Review.

### Energy market design

Supported by views across the wider industry, we recognise that electricity markets need to reform if the energy sector is to achieve net zero at minimum cost to consumers. While it is clear that market reform is needed, the challenges are complex and there are a wide range of possible solutions. We have a unique position in the industry and are well placed to put forward an informed, unbiased and whole energy system view on what reforms should look like. The roles in market design, as set out in the consultation, therefore represent a natural evolution of the ESO's current activities in this area.

We are working with stakeholders to develop the market arrangements needed to enable the successful delivery of our ambitions for zero carbon operation and competition everywhere. Our *Markets Roadmap to 2025*<sup>7</sup> sets out an overview of our transformational plans from today to 2025 for those markets in which we play a key role, such as the Balancing Mechanism and those for ancillary services. The roadmap presents our ambition to transform these markets and the principles underpinning their design.

We have now embarked on a program of broader market reform work, known as the Net Zero Market Reform project. This builds on our existing ESO market development activities, but looks much wider and longer term to provide a 'North Star' vision on how all GB electricity markets (including those that sit outside current ESO accountability, such as wholesale) need to reform to enable Carbon Budget 6 and net zero most efficiently. We are committed to engaging closely with stakeholders, including BEIS and Ofgem, to ensure we are considering a broad range of solutions and provide transparency in decision-making. With the ESO already undertaking work in this space,

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<sup>7</sup> <https://www.nationalgrideso.com/document/188666/download>

we would welcome the opportunity for the future system operator to take on a greater role in the broader design of energy markets.

We agree that it may be appropriate for the future system operator to take on responsibilities for some Capacity Market functions that currently sit with BEIS or Ofgem. One possible area could be designing rules and regulations for the Capacity Market framework. This could enable a more efficient end-to-end process and leverage our existing expertise, gained through developing and administering the codes process. It would also allow BEIS to step back and focus on setting clear policy direction.

We look forward to contributing to the BEIS five-year review of the Capacity Market later this year to determine what roles and responsibilities best sit with the future system operator.

### Coordination with distribution networks

We agree that distribution systems will play an increasingly important part in the transition to net zero. The accelerating trend of decentralisation creates the need for local markets for flexibility services and smarter networks, which will be critical to the decarbonisation of the energy sector.

These changes will significantly affect traditional roles and responsibilities within the industry. This includes both the local Distribution Networks Operators (DNOs) as well as Distributed Energy Resource service providers who are critical to the development of flexibility markets. It is important that roles and responsibilities develop in whole energy system coordination, so there is a consistent and aligned approach, alongside clear accountabilities.

While we believe that the DNOs, with their existing capability and knowledge, are better placed to perform many of the DSO functions and services, we welcome further consideration where there is a clear case for the future system operator assuming some new DSO functions and services in the support of a whole energy system approach. Examples could include roles which leverage the capabilities within the future system operator or that benefit from the strategic direction provided by a single national entity operating within a single national market. We agree that specific roles in relation to Gas Distribution Networks (GDNs), and how these interact with the future system operator, will become clearer in the mid-2020s, as decisions are made on heat.

We believe the roles within the future system operator should evolve to coordinate more strongly with DNOs and provide greater visibility across markets, system operations and our network development processes to enable better outcomes for consumers and net zero through efficient coordinated decision-making. Our consultation, *Enabling the Distribution System Operation transition*<sup>8</sup>, sets out our vision to work more closely with DNOs in each of these three areas by 2025. We are already undertaking some of these activities, including development of regional *Future Energy Scenarios* and our Regional Development Programmes. Where stakeholder feedback suggests we should be taking on new activities now to support the DSO transition, these will be reflected in our next RIIO-2 business plan for 2023 onwards.

During the DSO transition we will continue to work closely alongside DNOs, GDNs and Transmission Owners through the ENA Open Networks Project. We are already playing an important role in the project, including developing common contractual arrangements for flexibility services and primacy rules for ESO/DSO coordination. Our work with the Open Networks Project goes beyond DSO to developing whole energy system coordination, with the ESO leading the

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<sup>8</sup> <https://www.nationalgrideso.com/document/190271/download>

Whole Energy System workstream, which brings together GDNs and DNOs, and the development of the whole energy system cost benefit analysis tool and methodology.

We will continue to actively support the DSO transition and look forward to contributing to Ofgem's review of electricity distribution system operation governance later this year.

### Energy data

Open data and digitalisation underpin the whole energy system thinking required to achieve net zero and are critical to navigating increasing complexity at lowest cost for consumers. We recognise the importance of data and our *Digitalisation Strategy*<sup>9</sup> sets out our ambitions to 2025 in this area. We agree that a future system operator will be well placed to take on more activities in data and note the capability and knowledge build that would be required to enable this.

Open data is the lifeblood of an efficient energy system and market, changing the way market participants interact with us and each other, and enabling them to make informed decisions. We have already committed to improving the way we share data, evolving our data-sharing platforms to meet the demands of today's more data-intensive energy ecosystem. To achieve whole energy system benefits, it will be important that data is shared across the whole energy system, with clearly defined responsibilities needed for all industry participants. This will enable strong collaboration and co-creation of solutions.

We agree that achieving digitalisation and decarbonisation will require coordinating and maintaining data standards across the energy sector. A future system operator at the heart of the energy sector should have the ability to perform this role and would require the ability to ensure participants adhere to the standards. This is a key requirement to digitalise the industry and ensure coordination across the whole energy system is possible. Standards setting will be critical for enabling flexibility as our energy system becomes smarter, more digital and highly decentralised.

With its whole energy system remit, the future system operator will be well placed to determine and coordinate the data requirements needed to ensure visibility of capacity, constraints and trends, both now and in the future. This will allow the implementation of new technologies.

We are currently developing a data and analytics platform that will be agnostic to technology/energy vectors and able to handle all sources of data. We see potential to develop this into a coordinated data exchange, which could be beneficial to the overall coordination of a whole energy system that would also include data down to demand-side level.

We also look forward to the Energy Digitalisation Taskforce report, expected by the end of 2021, and a view on the development of roles and functions in the area of data and digitalisation and where a future system operator can help facilitate and accelerate the transition.

### Future system operability, engineering standards and energy code development

We agree that the future system operator could have a strong role to play in monitoring and proactively recommending changes to electricity and gas codes, and engineering standards. Engineering standards currently cover a wide breadth of topics. We believe it would only be

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<sup>9</sup> <https://www.nationalgrideso.com/document/186426/download>

appropriate for the future system operator to play a role in engineering standards that fall within its field of operation or expertise.

Changes to code governance will be essential to help transform the energy system at pace. As set out in our response to the Design and Delivery of Energy Code Reform consultation<sup>10</sup>, our preference would be for a Strategic Codes Body, working with code managers, to provide the required direction to the industry and better facilitate the changes needed to unlock the barriers to net zero. It is important that code managers have decision making powers to provide a better balance between the needs of industry and consumers. This could be better facilitated by a move away from code committees or panels to a model that provides greater accessibility for diverse market participants and energy stakeholders and provides the ability to move more quickly on code development.

Both this consultation and the Design and Delivery of the Energy Code Reform consultation introduce a competitive appointment process for licenced code managers. Without pre-determining their election, we believe it is critically important that the future system operator has a strong role in the code change process. We see this as particularly important for the technical codes such as Grid Code, System Operator Transmission Owner code and SQSS. If the future system operator were to act as an advisory body to code managers, we would see a need for an efficient formal advisory process for the code managers to ensure a focus on the delivery of net zero, while taking care not to introduce an overly burdensome governance process. This formal process should facilitate consultation between the future system operator and Ofgem, as the Strategic Body, and ensure that code managers consult with the future system operator and prioritise suggested areas of change.

The future system operator undertaking the role of an Integrated Rule Making Body (IRMB) would not be our preferred option. We consider Ofgem's current wide expertise and governance structures make it the best fit for a Strategic Body. Ofgem's role already gives it experience across all industry codes and the value of its decision-making structures and expertise should not be underestimated. We believe that its forward work plan also provides an established vision for industry development across all of its areas and would result in quick progress for its strategic aims. This current wider focus, established strategic planning and retained expertise means Ofgem stands out as best placed to enable a speedy transition to net zero through coordinated changes to the codes.

We are also concerned that the implementation of an IRMB within the future system operator would require a significant increase in resource and skill sets to manage codes that are not currently under our remit. In addition, creating new governance structures and processes would be complex, time consuming, and add little or no benefit beyond what is already largely in place for the Ofgem as a Strategic Body working with code managers model, set out as Option 1 in the Design and Delivery of Energy Code Reform consultation. We consider that Ofgem and BEIS's concerns that this implementation may distract from the prioritisation of the future system operator's other work are valid. While there are potential benefits of wider system coordination in an IRMB model, these can largely be realised within the Strategic Body and code managers model. We also feel that having separation between the strategic function and code manager better facilitates stakeholder relationships between the future system operator and other industry participants, which will be increasingly important as we work together to transform our energy system.

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1004005/energy-code-reform-consultation.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004005/energy-code-reform-consultation.pdf)



## Heat and transport decarbonisation

The fuel switching required for both heat and transport decarbonisation will be one of the biggest impacts on the national energy system on the road to net zero. This provides clear merit for the future system operator to provide advice to both sectors, and we would like to see roles in this area developed and defined in the near future. This could be built out from the work already undertaken as part of the *Future Energy Scenarios (FES)*. We are currently looking at how the *FES* can become more focused on regional aspects, which would add further depth to the advice.

An example of where having a multi energy vector body adds value is hybrid heating solutions. It would allow for study and understanding of energy demand at time of peak heat requirements across all energy vectors.

The future system operator could coordinate how the heat and transport sectors provide flexibility to the national energy system, through the likes of a vehicle to grid capability.

Coordination of local impacts in the distribution networks may still sit better in the DNOs. However, as discussed previously in our response, closer coordination with the DNOs is something we see as an increasingly important focus of the future system operator.

## Hydrogen

Hydrogen is an important energy vector in the whole energy system. A future system operator should be able to study how hydrogen best fits into the energy system and advise the energy industry on its use. This capability will take time to establish but should be done without delay.

A future system operator with whole energy system functions would be the natural place for hydrogen to sit, as hydrogen has some very clear whole energy system properties:

- it requires another energy vector to produce, i.e. it can be made from either electricity or natural gas,
- it can be used for long-term energy storage, facilitating more renewables onto the electricity system,
- it would be easily dispatchable to produce electricity at times of system stress, and
- it may be a significant fuel in hard to decarbonise sectors such as aviation and shipping.

The *Future Energy Scenarios* study hydrogen requirements and can provide a good starting point to develop this further. The hydrogen deployment will have a geographic aspect to it and will require a future system operator to study and advise on a regional as well as a national level, as the location will have a big impact on the investment and operation of the gas and electricity networks

The growth of this role is dependent on policy and the delivery path of hydrogen.

## CCUS

We agree that the initial development and study of carbon capture usage and storage (CCUS) should remain with BEIS, while an advisory role on how CCUS impacts the energy sector would sit with a future system operator.

CCUS is not an energy vector in the same way as natural gas, hydrogen and electricity. Its role is that of an enabler of some key technologies. It allows for the decarbonisation of natural gas, allowing it to be used for electricity generation, hydrogen production and industrial heat. It is also a key component in developing negative emissions technologies, for example, combining with the

combustion of bioresources or as part of a direct air capture technology. As CCUS has such a significant impact on the energy sector, it is appropriate for the future system operator to undertake a role in this area.

### Dispute resolution

At this stage, there is insufficient detail around what a greater role for the future system operator in dispute resolution could entail, and its value in supporting net zero. It is an area where we question the fit with the other roles and overall strategic ambition for the future system operator. We agree that there must be a route for dispute resolution, and we would welcome further discussion on this.

The ESO currently plays a role in determining disputes in relation to prequalifying industry applicants to bid in capacity auctions. We are keen to work with Ofgem, BEIS and industry to improve the associated guidance and remove ambiguity so the process is clearer for applicants and the number of disputes is reduced. This will not eliminate all disputes and the framework should still allow for bilateral discussion between the ESO, as the decision-maker, and the party who disagrees. If not resolved satisfactorily, there should be a further route for escalation, which sits independently and outside of the ESO. While this responsibility currently sits with Ofgem, it could instead be undertaken by a separate body, such as an independent panel of arbitrators. Irrespective of the outcome of this consultation, we look forward to continuing to work with Ofgem and BEIS to improve the Capacity Market process.

### Q13. What are your views on our proposed characteristics and attributes of a future system operator and how the models presented would deliver against them? Are there other characteristics or attributes that we have not yet considered?

There is no single clear best organisational model for the future system operator but we agree that the characteristics identified and the resulting attributes are generally the right ones to maintain and grow the agility, flexibility and innovation of the current ESO, and to fulfil the proposed new roles.

How these characteristics and attributes are enabled is of fundamental importance to ensure the future system operator is set up for success. Either of the broad models presented can deliver the characteristics and attributes required, but there will be trade-offs needed in the organisation design, which we discuss in more detail in our response to Question 14.

Below we have highlighted some specific dimensions that we believe are critical when assessing not just the two organisational options, but also when considering implementation:

- **Agility, flexibility and innovation:** The future system operator will need to understand and respond to the changing energy system efficiently and effectively, embracing new technology and solutions.
- **Technology and data enabled:** Systems and ways of working, as well as how the future system operator interacts and share data with stakeholders and partners, will be vital to success. The future system operator will need to be an enabler of innovation in internal ways of working, as well as facilitating the innovation of others.
- **Consumer focus:** Decision-making must fully consider consumer fairness, with accountability to the consumer demonstrated in all activities. Security of supply and decarbonisation will need to be balanced against fairness to the consumer to ensure that the wider public remain supportive of, and ultimately drive, the energy transition.

- **Technically expert and operationally excellent:** The processes and governance of the future system operator must support its core purpose, and the employee value proposition must enable talent to be recruited and retained in an increasingly competitive field.
- **Independence:** As the new roles of the future system operator expand its remit, demonstrating independence from conflicts of interests (both real and perceived) with any 'other energy interests', as well as from the government, will be crucial.
- **Resilience:** The future system operator will require operational resilience to enable safe and reliable energy delivery as the energy system transforms - both on a day-to-day basis and also in times of system stress. It will also require financial resilience with the discretion to invest to meet net zero and ensure sustainable operations in the event of financial shocks.

The implementation programme will need to carefully consider the characteristics and attributes, as well as the dimensions above, as no organisational model easily meets them all.

#### Q14. Are we considering the right organisational models for the FSO? And why?

We believe the consultation is considering the right organisational models for the future system operator, as the two outlined models cover a broad spectrum of both ownership and governance options. While either model has the potential to enable the desired outcomes of the future system operator, the detailed design will be critically important to ensuring that this is the case.

The two models are reasonably broad. For example, the privately owned model could range from a publicly listed company, with shares regularly bought and sold on a stock exchange by private or institutional investors, to a company owned by private equity investment or a consortium of private investors, or a consortium made up of owners from across the industry to ensure one did not have exclusive control. In all these examples there are ways the Government could maintain influence, such as with a 'golden share', and/or representation on the Board. The public sector model has a broad range of standard classifications of publicly owned organisations, including (but not limited to) Public Corporations, Non-Departmental Public Bodies (NDPBs), Executive Agencies (EAs) and other forms of Arm's-Length Bodies (ALBs).

We have not identified one of the models / bodies as the preferred option, however there are elements in each of them that could be implemented in the organisational design to deliver the desired characteristics and attributes.

Below we have included examples of different models that deliver some of the characteristics and attributes

#### Privately owned bodies

- **BT:** A multi-national telecommunications company that is the largest provider of fixed-line, broadband and mobile services in the UK. Incorporated as a 'plc' in 1980, BT operates under special regulation through Ofcom. It is the only telecom service provider that operates through a *Universal Service Obligation*, where it must provide a fixed telephone line to any address in the UK.
- **NATS:** The main air navigation service provider in the United Kingdom. Became a Public Private Partnership in 2000, with the Airline Group (a consortium of UK and European airlines) holding

42% ownership and having the right to appoint the Chair and five Directors to the Board. The UK government holds a 49% ownership stake, which allows it to appoint three 'Partnership Directors' to the Board, as well as provide approval to the appointment of the Chair.

### Publicly owned bodies

- **Bank of England:** The central bank of the UK was provided with independence in certain areas, most notably in monetary policy, in 1997. Accountable to Parliament (through the House of Commons Treasury Committee), the Bank of England's technical expertise and independence of decision-making is critical for the execution of the UK's monetary policy and the Bank's responsibility in working with financial institutions in the interests of financial stability.
- **Channel 4:** An independent statutory corporation since 1993, entirely self-funded through the sale of on-air advertising, programme sponsorship, sale of programme content and subscription fees. Channel 4 is a publicly owned world leader in the provision of entertainment and media that can recruit and retain the best talent in its field. Accountability to the UK Government and Parliament is maintained through public service obligations under various Communications Acts and through non-executive directors being appointed by Ofcom (with agreement from the Secretary of State for Digital, Culture, Media and Sport).

It is apparent that there is no clear best organisational model as there will be trade-offs between how they deliver the desired characteristics and attributes. However, we believe there are three outcomes that are absolutely critical to the success of the future system operator and how it can enable the delivery of net zero:

### 1. Independence of private and public interests

As outlined above, and in our response to Question 13, independence (both real and perceived) of both the commercial interests of current and future participants in energy and of government are critical to the success of the future system operator. This would enable the future system operator to:

- Make decisions regarding system and market operation and long-term network development that balance between different vectors and long-term solutions to ensure the decision is best for UK plc and achieving net zero.
- Provide an impartial voice in policy decisions through the advisory role that all government, regulatory, industry and consumer representatives have utmost confidence in.
- Provide confidence to current and future energy industry participants that there is a neutral organisation responsible for system and market operation and long-term network planning. This would enable market solutions to play a greater role in the future energy system and enable the investment, innovation, consumer choice and market discipline required to deliver net zero in the best way for consumers.
- Provide consumers with the confidence that their interests are protected and that net zero will be delivered in the most affordable way.

### 2. Enabling rapid decision making and an innovative mindset

To be able to respond to, and lead the energy transition, the future system operator will need to be able to demonstrate:



- speed of decision-making and agility that goes beyond just control room operations, and
- a more innovative mind-set to deliver the system and technology changes required to deliver net zero.

### 3. Attracting the right talent

As outlined above, and in our response to Question 13, being able to recruit and retain people with the right skills, experiences and capabilities will be critical to ensure the future system operator can continue to deliver its current roles and expand into the new and enhanced roles required for net zero. This would enable the future system operator to:

- ensure that it is regarded, within the UK and globally, as a leader in enabling the transition to net zero
- provide confidence to the government, regulators, industry, and consumers that the decisions, advice and operations it carries out are driven by cutting edge technical capabilities, and
- provide a pathway to net zero for the GB energy system that is optimal and fair for the consumer and UK plc as a whole.

In conclusion, we agree the two organisational models in the consultation are the right high-level options for the future system operator. However, these would have to be developed further to ensure the preferred model delivers the required characteristics and attributes.

### Q15. Are we considering the right elements for the FSO's regulatory and accountability frameworks? And why?

#### Regulatory framework

We broadly agree with the principles of the regulatory framework set out in the consultation. When setting up the future system operator, we believe it is crucial that the regulatory framework is considered holistically, maximising the opportunity to consider how legislation, the licence(s) and any Strategy and Policy Statement (SPS) will work coherently to provide a clear set of expectations for the organisation. The framework should ensure accountabilities are explicitly defined, not just for the future system operator but also for Ofgem and BEIS.

On 1 April 2019, the ESO became a new, legally separate company within National Grid Group. The RIIO-2 price control represented a first-of-a-kind opportunity to design a bespoke regulatory framework for this standalone business, to drive the right behaviours and support us in delivering the necessary investment for a zero-carbon power system. RIIO-2 successfully delivered a framework that recognises the uniqueness of the ESO as an asset-light, digital, service focused business, and has enabled us to prioritise wider system and consumer interests in decision-making. We are pleased to see that regulation for the future system operator will be largely based on this framework.

We agree with the designation of a SPS, which will frame the BEIS policy objectives and set the framework under which the future system operator will operate. It would be helpful, if before designating, the Secretary of State were to have a statutory obligation to consult the future system operator. Appropriate consideration will need to be given to understand how the SPS will impact on, and interact with, other regulatory obligations set by Ofgem. It will be critical that there is clear

distinction, but alignment, between all the obligations and accountabilities placed on the future system operator and other parties.

We would welcome the opportunity to work with Ofgem and BEIS to further develop the detail of the regulatory framework for the future system operator. Further detail on how we believe this could be implemented can be found in our response to question 19.

### Funding

We support the intent for the future system operator to continue to be broadly funded as per the current regulatory price control mechanism, via network charges. This should ensure key investments needed to deliver net zero can be made in a timely way.

We agree that in either organisational model, the future system operator would need to maintain its financial standing and credit rating to manage its cashflow, as part of its financial role within the industry, and have access to funds at market rates when required.

The ESO currently uses a working capital facility to manage short-term liquidity on behalf of the industry. Such a facility for the ESO differs from most businesses because our industry revenue management role, and the scale of revenues we transact, is significantly larger than both our asset base and our internal expenditure. It is likely the risk exposure for the future system operator will continue to change, particularly given the recommendations of the second Balancing Services Use of System (BSUoS) taskforce that there would be overall industry benefits in setting fixed volumetric tariffs for BSUoS charges, potentially creating additional cash flow risk for the ESO. While the risk exposure may change, it will be crucial that the future system operator can maintain an appropriately sized working capital facility for short-term liquidity. We know that a smaller, independent organisation outside of the National Grid Group would likely be able to access a lower level of capital and/or at higher cost.

Another consideration is how the organisation would secure sufficient debt funding, which is largely dependent on its credit rating. As an organisation outside of the National Grid Group, it is possible the future system operator would have a lower credit rating than today's ESO. Should the future system operator be established as an independent privately-owned organisation, the credit worthiness of its new owner would be an important consideration. If the future system operator were to become a public body, we would need to better understand the role the Government would play in supporting its financial standing.

In either organisational model, the credit rating of the future system operator will have a significant impact on the organisation's ability to access debt funding. Further work would be needed to understand how the organisation would raise debt in capital markets and on what terms.

### Independence

As the ESO's roles in the industry evolve and expand, we recognise that it is the right time to further consider the organisational model to ensure the appropriate level of independence from both other commercial energy interests and the government. This will prevent perceived or potential conflicts of interest arising from these new roles and increase confidence across the industry and from consumers that the future system operator can provide an expert, impartial voice.

### Incentives

In either organisational model, establishing appropriate incentive arrangements will be a crucial part of setting the future system operator up for success. A well-designed incentive scheme would make

sure the organisation is focused on delivering the right outcomes for consumers and net zero, while creating a strong motivation to outperform.

Over the last few years, our incentive scheme has driven the kinds of behaviour Ofgem, acting on behalf of consumers and industry stakeholders, want to see and has aligned the interests of consumers with those of our shareholders. The scheme has encouraged us to focus on aspects such as acting on stakeholder feedback, improving the transparency of our activities, and delivering our plans. We agree that the application of organisation-wide financial incentives could continue to drive the right behaviour from a privately-owned future system operator. The financial reward or penalty should be set at a level to drive the ambitious, proactive behaviour needed from the future system operator while ensuring that the potential downside does not hinder the ability to finance the organisation.

Both the ESO and Ofgem have less experience of how a publicly owned body could be incentivised. While the current incentives model could remain appropriate, further work may be needed to understand how other forms of incentives, such as reputational or performance-related pay, could also help drive the desired behaviours and outcomes.

It is important that, in any model, the incentive scheme drives alignment helps all employees feel valued and motivated to deliver. Therefore, careful consideration must be given to what behaviours and outcomes the incentive scheme needs to drive, clear expectations are set out for what good looks like and to ensure that the regulatory reporting burden is appropriate.

**Q16. Do you have views on the level of shareholding or control involving other ‘energy interests’ and the FSO at which a conflict of interest would become a concern?**

Given the nature of the role of the future system operator, independence is a critical design feature and any level of ownership by other ‘energy interests’ would result in some dilution of that independence. A clear position would need to be agreed by BEIS and Ofgem on the level of shareholding in the future system operator that would be tolerable to both the economic regulator and the energy industry, and the influence and control that shareholding can exert. While we do not have a detailed view on the acceptable level of shareholding in percentage terms, we do consider that other energy interests, if unavoidable, should be minimal.

If required, controls could be put in place to maintain the future system operator’s independence. These would also be required to protect the future system operator from ownership by an investor that could compromise national security.

There are also various standard controls that could mitigate against the risk (or the perception of risk) that an investor will use its shareholding to influence decision-making in favour of its other commercial interests. These include, although are not limited to:

- Placing limits on the rights of shareholders to appoint directors to the Board. This would ensure ownership does not automatically lead to influence or control.
- If shareholders do have the right to appoint directors to the Board, this should be when their level of shareholding reaches a certain limit. This would then require an assessment of the investor’s wider portfolio of investments and activities to understand any intention (or perceived intention) to unduly influence decision-making.
- Certain decisions can be designated to specific sub-committees where the standing attendees are explicitly controlled. This would place a control on what an investor could see or the decisions it could be involved in.

- The investor could formally recuse itself from activities where there would be a risk of conflict of interest (currently covered by licence requirements governance compliance with Companies Act).
- Investors could be prevented from receiving access to information that would be commercially advantageous (currently covered by licence requirements governance compliance with Companies Act).

All of the above could be mandated in the Articles of Association, although they may not be sufficient to protect the independence, real and perceived, of the future system operator.

Given that independence is at the heart of the future system operator, any conflict (or perceived conflict) of interest with the energy industry would be problematic and should be avoided if at all possible.

#### Q17. Are we considering the right implications of our proposals for Elexon and Xoserve?

##### Elexon

We recognise that the creation of a future system operator impacts, and is of relevant concern, to Elexon. We believe the consultation considers the right implications for the organisation. Depending on the ownership and licencing arrangements of the future system operator, consideration needs to be given to how Elexon would be set up and established. We are supportive of working with Ofgem and BEIS to develop the appropriate arrangements and understand how they will work in practice.

##### Xoserve

We believe the implications for Xoserve are dependent on which gas roles and functions are undertaken by the future system operator. In the case that the preferred option 1 is progressed, with the future system operator undertaking gas strategic network planning, long-term forecasting and market strategy functions, we believe this would have minimal impact on Xoserve. Should option 2 be chosen, where the future system operator undertakes all Gas System Operator roles, further work would be needed to determine Xoserve's ownership and governance arrangements.

#### Q18. What is your view on the preferred implementation approach? Please explain why

We agree with the proposal for a phased implementation of the future system operator. We see the transition to a fully implemented future system operator happening in three phases:

- Detailed planning and design
- Preparation for "day one"
- Transition to full implementation

Implementation of a future system operator is not solely within the control of the ESO, however for illustrative purposes, we have set out below a high-level potential pathway through implementation. This is just one possible approach and much more work will be required in collaboration with BEIS, Ofgem and National Grid plc to determine the overall best approach and establish a detailed plan for implementation.

Our experience of legal separation highlighted the benefit of a multi-party statement of intent being published as early as possible. This would help provide the clarity on shared principles, objectives

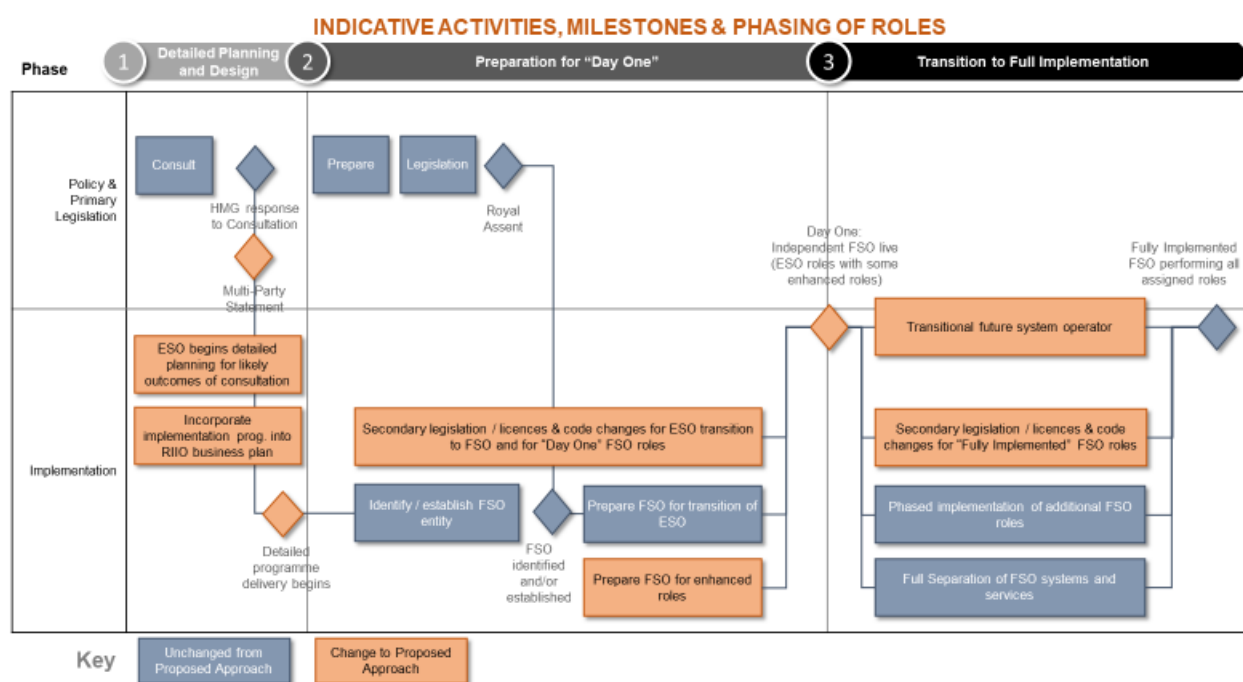


and outcomes needed to allow the progression of ‘no regret’ activities such as transition planning. We believe that it would be beneficial if such a statement of intent were published close to the outcome of the consultation.

The other key element is legislation – we estimate that completing primary legislation before the end of 2022 would allow Royal Assent to happen in mid-2023. Delays to primary legislation beyond this point could cause disproportionately long delays in securing Royal Assent and the subsequent steps.

The image below shows indicative phases of activities as set out in the consultation. High-level milestones are likely to be broadly consistent irrespective of which organisation model is ultimately chosen, although some of the detailed activities and timings would change depending on the chosen model, especially with regards to transaction<sup>11</sup>, funding, and transfer of employees. Other activities, such as the separation of shared services, would need to happen regardless of ownership.

Elements outside of our direct control which could affect timings are licence changes, roles, sale process, legislative timetable and activities to be completed by National Grid plc and other relevant parties.



### Phase 1: Detailed planning and design

This phase runs from the close of the consultation to the subsequent start of a change delivery programme. It includes detailed planning for the establishment of the new future system operator - developing cost estimates and timelines for implementation to inform execution in the later phases.

<sup>11</sup> Any transaction to sell the ESO would be a matter for National Grid plc and the new owner(s) exclusively.

Our intention is that the activity in this phase would align with the request in Ofgem’s ESO Business Plan: Guidance Document<sup>12</sup> to include an indicative view of transformational activities and costs in our business plan for 2023 onwards. This will be a first step in defining the details of the transition to a future system operator. It is important to note that this will only provide a partial view; National Grid plc will also incur costs during the implementation process that need to be factored into the overall cost assessment.

### Phase 2: Preparation for ‘day one’

The second phase would take us to a new independent future system operator, built upon the existing ESO as a foundation, with additional or enhanced roles, a new corporate identity and new ownership. This phase would continue some of the preparation and planning activities from phase one, but we would see a shift towards execution and the establishment of the independent future system operator as a new legal entity. The capabilities, people and assets required for the future system operator would be transferred into this entity as determined by the sale process.

During this phase, we would continue to deliver our operational and business plan commitments while undergoing changes to prepare us for “day one”. Changes would include recruitment or transition of people for new roles, as well as development of our own arrangements for the shared services we currently receive from National Grid plc.

A key change would be a further shift towards whole energy system thinking and the capability to function beyond the electricity system alone. Changes to culture and ways of working would happen progressively through this phase so that the organisation is ready to stand alone, deliver with confidence and engage externally as a new body.

At the end of this phase, with transaction complete, the future system operator would be in its “day one” state, where it is under new ownership and operating under a single licence for both electricity system operation and gas planning roles. It would be performing all existing roles of the ESO with some new or enhanced roles, as outlined in our response to question 19.

### Phase 3: Transition to full implementation

During this phase, iterative changes to the future system operator’s licence and related codes would take place as it assumes new and enhanced roles over time. The future system operator would also be further developing its independent business support arrangements.

This phase would end with a “fully implemented” future system operator undertaking all the new and enhanced roles where applicable, and as defined in any future consultations. Though this would mark the end of the implementation of the future system operator, improvement and evolution would continue.

### Enablers to implementation

At all points during the transition, a clear understanding of priorities, dependencies, interim milestones, governance and the stakeholder engagement process would allow implementation to happen using agile project delivery. Ultimately, we feel that all parties should agree a set of principles for implementation. These would help to align all parties on the many decisions that will need to happen. We believe these should include, but not be limited to, the following items:

- system security and delivery of our RIIO-2 Business Plan commitments is assured

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<sup>12</sup> <https://www.ofgem.gov.uk/publications/consultation-eso-business-plan-guidance>

- the change is a positive experience for all stakeholders, including transferred employees
- the shortest safe path is taken to create an independent future system operator to minimise uncertainty and enable a cost-effective transition to net zero at pace
- a phased approach is used, with a clear interim state of the organisation to provide islands of stability through the change
- a foundation is set for the future system operator to consider the whole energy system from day one.

There is a significant amount of work required to define the details and costs of any transition to a future system operator, for the ESO as well as other parties including the current owner, National Grid plc. Nonetheless, it is important that a transition plan is agreed promptly, including a timeline, budget and approach.

**Q19. Based on the areas where we are considering new and enhanced roles and functions for the FSO, which of these should be prioritised for development? Please explain why.**

Given the scale of work to do and the level of capability build that will be required to ensure that the future system operator is set up for success, we agree that roles focussed on achieving net zero and consumer value should be prioritised. Our view on which roles should be prioritised is outlined in the table below, followed by our explanation of why we believe the future system operator should undertake these roles from day one.

Category	Roles
Should be part of a future system operator from day one	<ul style="list-style-type: none"> <li>• All existing roles and functions of the ESO</li> <li>• Specific gas roles (strategic network planning, long-term forecasting and market strategy functions)</li> <li>• System planning and network development (enhanced role: to coordinate system planning and incorporate whole energy system solutions)</li> <li>• Driving competition (enhanced role: increased competition utilising a greater range of commercial solutions)</li> <li>• Energy market design (enhanced role: working with stakeholders in the design of an energy market to achieve net zero)</li> <li>• Advisory role (resource in place, building capability from 'day one')</li> <li>• Office of Energy Resilience and Emergency Management (as described in our response to Question 9)</li> </ul>
Potential day one roles, subject to timeline of further development with industry and stakeholders	<ul style="list-style-type: none"> <li>• Coordination with distribution networks</li> <li>• Energy data</li> <li>• Future system operability engineering standards and energy code development</li> </ul>
Roles yet to be fully defined; implementation will follow future cross sector consultation.	<ul style="list-style-type: none"> <li>• Heat and transport decarbonisation</li> <li>• CCUS</li> <li>• Hydrogen</li> </ul>

Roles potentially not appropriate for a future system operator

- Dispute resolution

Achieving net zero on time and in the most cost-effective way will require the future system operator to have a truly whole energy system view, to support optimised decision-making and action in the decarbonisation of power, heat and transport. To achieve this, we see the key areas that will need to develop are:

- Whole energy system solutions
- Coordinated system planning
- Competition within the industry
- Markets for a net zero system

The roles included in day one should facilitate the development of these areas. Starting with the inclusion of the strategic gas roles, this will enable whole energy system understanding and develop solutions across multiple energy vectors. Not only will this allow whole energy system thinking across these two sectors, but it will create a strong foundation to consider other energy vectors and enabling technologies, such as hydrogen and CCUS.

The enhanced roles in strategic network planning and driving competition in energy networks represent a natural evolution of our current work and of our ambitions developed with stakeholders in RIIO-2. There are significant opportunities to drive progress and efficiencies in these areas by considering them in a whole energy system way. Driving competition will be a key element of delivering network development in the most efficient and cost-effective way. We already have a strong understanding of how this could come together through our work on early competition, and this would provide a good base on which a future system operator's role could be built from the outset.

The role of energy market design will allow the future system operator to put forward views on holistic energy market reform. This is needed from day one to drive the investment and behaviour changes to deliver net zero and ensure security of supply at a fair and reasonable cost for all consumers.

With the unbiased whole energy system mindset of the future system operator, combined with its technical knowhow, the final role that should be prioritised is the advisory role. We see the advisory role as being well aligned to the purpose and capabilities of a future system operator. More work will be required to define its scope, but there will be clear value in an expert, impartial voice providing targeted technical advice in a number of areas, particularly to facilitate decision making.

Some of the proposed roles and capabilities, specifically those in hydrogen, CCUS or heat and transport decarbonisation, are naturally less defined as they will require greater clarity in other areas before they can be further developed, including further consultations.

We believe that it is in the best interests of all stakeholders for implementation to happen as quickly as possible without undue risk. Throughout this time there will be a role for BEIS and Ofgem to communicate and prepare wider industry for the impact these changes will have on them.



## Q20. What do you believe are the risks to implementation? How can these be mitigated?

We have identified three key risks to successful implementation of an effective future system operator:

- 1) Distraction, insufficient resource and management stretch** leading to: i) disruption of our core operational commitments i.e. energy balancing and transmission system operation and ii) disruption to delivery of our commitments in the RIIO-2 business plan.
- 2) Lack of a clear, common understanding of purpose, roles, accountabilities throughout implementation and when they come into effect**, leading to delays or failure to deliver on commitments.
- 3) Delayed implementation of the future system operator** leading to i) greater uncertainty for our people, resulting in a reduction in engagement or talent retention; ii) greater uncertainty for future system operator stakeholders, resulting in postponement of investment and projects and impacting delivery of net zero and iii) increased programme costs.

### Mitigation of risk

Mitigations for these risks fall into three groups:

- Clear definition of purpose, funding, legal basis and roles of the future system operator.
- Enablers (people, systems, business capabilities and assets) in place ahead of time to allow us to focus on transition and new roles while delivering existing commitments. We expect the type of talent required to fulfil the intended organisational characteristics for the future system operator to be in high demand.
- Robust programme management, risk management and governance. The programme team must have dedicated resource to manage the transition and prepare the organisation for new roles without pulling resource away from delivery of core commitments.
- A phased delivery approach with early clarity on the key principles and direction of travel – this will allow progress to be made early on no-regrets activities, detailed and robust plans to be put in place and our people to be reassured and be engaged with, and a part of, the transition from the beginning.

Responsibility for some of these mitigations lies with the organisations that would transition to make up the future system operator. Other mitigations must be delivered by National Grid plc, the government and the regulator. Successful creation of the future system operator is only possible if all affected parties work together to create the right environment for implementation and a shared view on desired outcomes and plans to deliver.

Details behind each mitigation group can be found in the table below:

Mitigation	Mitigation details
1. Definition of future system operator, purpose, funding, legal basis and roles	<ul style="list-style-type: none"> <li>• BEIS/Ofgem to provide a clear view on ownership model, roles, accountabilities and when they come into effect.</li> <li>• All parties to agree processes and legislation, for any new roles.</li> </ul>

	<ul style="list-style-type: none"> <li>• Clear direction set as early as possible with enough time allowed in the programme for legislation, licence and code changes.</li> <li>• BEIS/Ofgem provide a clear view on funding of the future system operator during implementation and beyond.</li> </ul>
2. Enablers in place ahead of time; people, business capabilities, systems and assets	<ul style="list-style-type: none"> <li>• All parties to agree a process for ongoing engagement and consultation, with clear and timely communication on intent, progress, next steps and resolution of queries.</li> <li>• ESO to ensure there is a plan in place for ensuring key roles are filled on time, which would require recruitment prior to “day one”.</li> <li>• BEIS/Ofgem to ensure that the organisational model enables retention of talent (through a strong value proposition) and fulfilment of the characteristics outlined in this consultation response.</li> <li>• ESO to define an employee value proposition.</li> <li>• ESO to ensure that all affected assets, systems, and business capabilities are identified and covered by a business change impact assessment.</li> <li>• Design of separate future system operator enablers (e.g. HR, finance etc.) should begin as soon as possible. Transitional service agreements for shared services where appropriate.</li> </ul>
3. Robust programme management and governance	<ul style="list-style-type: none"> <li>• All parties to agree governance and assurance frameworks at the start of the programme.</li> <li>• ESO to ensure programme managed by a competent team using a recognised framework with implementation plans agreed by all parties.</li> <li>• ESO to establish a comprehensive stakeholder engagement programme including new brand and identity, with endorsement from the regulator.</li> </ul>
4. Phased approach with early clarity on principles	<ul style="list-style-type: none"> <li>• A phased delivery approach with early clarity on the key principles and direction of travel, with shared milestones for each phase.</li> <li>• Clear direction set as early as possible with enough time allowed in the programme for legislation, licence and code changes.</li> <li>• Detailed communication and engagement with our people to provide reassurance and ensure they are part of the transition from the beginning.</li> </ul>

**Q21. Do you have any comments on potential implications of implementation for you, your organisation, or other stakeholders?**

We set out implications for our organisation and people below. Our response focusses on implications for the ESO. We expect National Grid plc to submit a separate response which presents their perspective. Implications of implementation for external parties are addressed in our response to Question 25.

## Implications for our people

Following the proposal for a future system operator independent of National Grid plc, we commissioned an independent agency to conduct a colleague sentiment survey. We had a great response rate at 76%. It was noticeable that 41% of colleagues feel excited about the potential changes and the drive to delivering net zero, but understandably are primarily concerned about the impact the changes will have on their role, their terms and conditions and any potential consequences of separating from a large organisation. The speed of implementation will help alleviate any prolonged uncertainty for colleagues.

24% of those who responded are worried about potential changes and 61% of those cite 'leaving a large organisation' as their main concern. Though the future system operator is likely to be a growing organisation, there is a risk this may not replace the career journey possible in a large group with multiple business units. We must ensure that our people are clear on the reasons for change and that certainty is provided on what that means for them (including pensions, length of service, future reward strategy, future opportunities, location etc.) as soon as possible.

There are great opportunities to make this a positive change for our people. For example, our employees have expressed a clear desire for the organisation to be empowered to become more agile, decisive and innovative. Another opportunity is around retention of talent. We believe that our focus must be on creating a strong value proposition and an exciting vision of a future system operator that people *want* to be a part of. This would need to be complemented by robust succession and development planning through the entire organisation to maximise the opportunity to make this a net positive change for everyone involved.

### On a scale of 0-10 how excited or worried are you about the potential changes to the ESO planned by the Government?

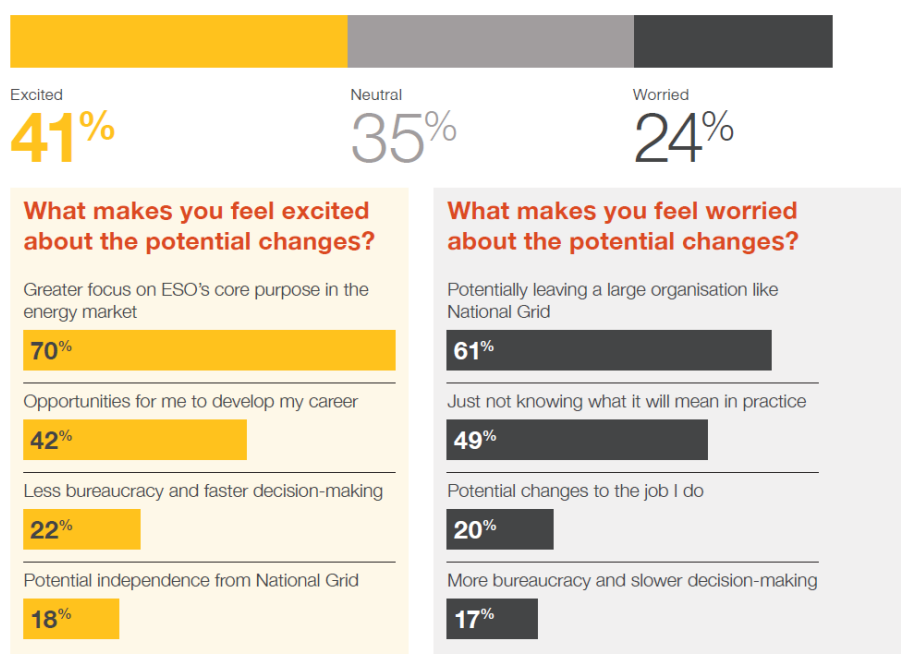


Figure 1: Employee feedback and input into the future of the Electricity System Operator, August 2021

## Implications for the ESO as we transition into a future system operator

These are the wider implications we see for our organisation:

- **Business and shared services:** A new capability would be needed for support functions currently provided by National Grid plc. This could initially be provided under transitional service agreements, but standalone capabilities would need to be created soon after the establishment of the future system operator. This may require recruitment prior to “day one”.
- **IT systems and services:** As with business and shared services, a new capability would be needed to establish full separation from National Grid plc. A significant task will be establishing the cybersecurity service. Both a transitional arrangement supported by National Grid Group (via a transitional service agreement) and a fully standalone capability will be significant parts of the critical path for implementation.
- **Property:** The legal separation programme established arrangements for physical separation from National Grid plc. It will need to be decided as to whether these arrangements are satisfactory for the future or whether further separation is required.
- **Pensions:** A new employee value proposition will have to be developed and trade union consultation will be required as part of the critical path for implementation. A significant change such as this will bring uncertainty for our people. Providing assurances early, particularly regarding the pension model, will be of fundamental importance.
- **Finance and assets:** A standalone future system operator will need to consider the financing of the organisation, including long-term and short-term funding.
- **Market position and risk appetite:** a new, independent, position in the country’s energy industry comes with a new risk profile, and a potentially different appetite for risk. An independent future system operator should embody both the experience and trust of an established organisation along with the energy, freedom and ambition of an entirely new one. This would be a significant undertaking and one that must resonate with external stakeholders and our colleagues within the ESO alike.
- **Brand:** The future system operator will require its own unique identity and brand that reflects the central nature of the roles it undertakes.
- **Culture:** A new position in the energy industry, new roles and a new organisation model bring an opportunity and need to evolve the way we work and think. The future system operator will have a wider scope across the whole energy system so we will need to nurture new capabilities and a culture which embraces agility, forward thinking and the provision of advice.

### Other impacts

Please see our response to Question 25 for our comments on the implications for wider energy stakeholders.

**Q22. What is your view on the position there are likely to be cost savings across the energy system from an increased “whole energy system” view, as described in paragraphs 47-52 of the IA? If so, is the potential magnitude of savings illustrated fairly in the IA? If not, why not?**

We agree that there are likely to be cost savings across the energy system from an increased ‘whole energy system’ approach, as discussed in the Impact Assessment (IA).



We welcome the finding in the main consultation document and the IA, that there is currently no evidence of a conflict of interest being acted upon by the ESO. We understand therefore that the cost savings discussed relate to a future view of system development, and the potential cost savings associated with this.

We acknowledge that quantifying potential cost savings of large-scale system changes is challenging, and that small adjustments to assumptions can lead to substantial changes to the overall assumed cost savings. It is also important to consider that the earlier key decisions are made to give clarity to industry, the more quickly benefits can be realised

Furthermore, we note that in the IA, the key savings considered regarding electricity system development focus on network build. However balancing costs are a key parameter driving cost in the electricity network, and it will be important to maintain a focus on minimising these.

Bearing this in mind, the assumptions and estimated ranges put forward in the IA begin to estimate the potential magnitude of savings associated with a future improved whole energy system view, as well as capturing more qualitative benefits. However, we anticipate that considerable future analysis will be needed to assess more refined options in much greater detail, as noted in paragraph 29 - particularly with regard to potential costs of establishing the future system operator (see Q24).

**Q23. What is your view on the conclusion that policy intervention is likely to increase the benefits of onshore electricity network competition, as described in paragraphs 53-59 of the IA? If you agree, is the potential magnitude of savings illustrated fairly in the IA? If not, why not?**

As discussed in our own work considering early competition, there could be significant benefits in the introduction of onshore electricity network competitions, such as the potential to unlock innovation to address network needs and the ability to innovate across the whole project life cycle.

As part of the development of our *Early Competition Plan*<sup>13</sup>, stakeholders raised their concerns regarding perceived conflicts of interest of the ESO becoming the Procurement Body while remaining part of National Grid Group. We are aware these concerns could lead to reduced participation in competitions (and hence less competitive pressure and higher costs) than would be the case with a fully independent system operator. The Impact Assessment also highlights other ways potential or perceived conflicts of interest could reduce the benefits of early competition.

On the other hand, we have had extensive external involvement in our new Network Options Assessment Pathfinder projects, which are themselves a form of early competition. This implies that our current ownership status does not appear to have significantly reduced participation in these kinds of competitive processes, where we have realised significant consumer savings over the contract length.

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<sup>13</sup> <https://www.nationalgrideso.com/document/191251/download>

**Q24. Do you think that the impact assessment has identified and considered the key costs and benefits of policy intervention? If not, can you provide details on other impacts that have not been considered?**

As part of the legal separation of the ESO from National Grid Group, a number of work packages were undertaken. These included: separation of some shared services from National Grid Group, moving ESO staff to a separate building, rebranding the ESO, setting up a discrete web presence, redesigning services that straddled the TO / ESO boundary and separating governance structures.

Some of these work packages have paved the way for a move to a completely independent future system operator, and therefore, have effectively reduced the additional implementation costs of such a policy intervention. Other work packages may have to be repeated as part of this policy intervention, for example rebranding for a future system operator that is completely separate from National Grid Group. In any event, significant further work needs to be undertaken to move from an organisation that is owned, but legally separate within National Grid Group, to one that is wholly independent. The separation of shared services is likely to be complex due to the breadth of services and areas currently shared with National Grid Group. The full costs of people transition (pension liabilities, share schemes etc.) will also need careful consideration.

In line with guidance set out by Ofgem, as part of the preparation of our second RIIO-2 business plan (for 2023 onwards), we will estimate the internal ESO transformation costs to move to a future system operator<sup>14</sup>. This will assign indicative costs and timings to the key transformational activities discussed in Question 18 and will enable us to comment in greater detail on the key costs outlined in the Impact Assessment (IA). It is important to note that this will only provide a partial view; National Grid plc will also incur costs during the implementation process that need to be factored into the overall cost assessment.

Our current view is that full costs of implementation have the potential to be greater than the indicative figures put forward in the IA, but to fully explore this will require greater detail as to what has been included. We note for example that outstanding costs of ESO separation have been excluded from the indicative costs (footnote 18, p14).

**Q25. Do you think that the distribution of impacts is fairly represented, with impacted groups correctly identified? Outlined in table 5 of the IA.**

Our response to question 21 discusses in further detail the main impacts to the future system operator. In particular, we would add the below to table 5 in the Impact Assessment:

#### **Future system operator**

##### **Costs**

- There is a significant risk and associated cost of talent attrition for employees who would prefer not to move to a future system operator.
- There will be a number of one off and ongoing implementation costs, not all of which may have been covered in the impact assessment (see Q24)

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<sup>14</sup> Other costs will also need to be considered, including National Grid Group separation costs

### Benefits

- There is likely to be the opportunity to redesign corporate processes / services to more tightly focus on the core purpose for the organisation

Q26. We invite respondents' views on whether the proposals for energy system governance reform may have a different impact on people who have a protected characteristic (age, disability, gender re-assignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex or sexual orientation), in different ways from people who don't have that characteristic. Please provide any evidence that may be useful to assist with our analysis of policy impacts.

From a consumer perspective, we do not believe, that at this stage the proposal for energy system governance reform would have any distinct impact on people who have a protected characteristic. However, by taking a whole energy system view of energy developments, there will be an opportunity to avoid unintended consequences for particular groups or sections of society.

From an employee perspective, utmost care will need to be taken to ensure that the transition to a new organisational design is undertaken in an equitable manner. Our vision is for an even more diverse and inclusive organisation and we are conscious that different aspects of the transition will affect different groups, including people with a protected characteristic, in various ways.

For example, for older employees, pensions may be a much more important topic than other terms and conditions, and any property relocation could adversely affect those who are balancing caring responsibilities around work commitments. Future buildings and work practices will need to be as accessible as possible. The ESO has a proud tradition of continuous reflection and targeted campaigns in the areas of inclusion and diversity, and we want to ensure that progress in this area continues at pace. We will continuously assess how transition planning could affect all groups, including those with protected characteristics.